TRANSFER PRINTING WORKSTATION

[0001] The present invention broadly relates to the art of transfer printing and, more specifically, to a workstation suitable for producing custom printed articles using a transfer printing process.

BACKGROUND OF THE INVENTION

[0002] Custom printed articles, such as those having a personalized image and/or message there on, for example, are generally well known and commonly produced. Such custom printed articles typically include t-shirts, hats, computer mouse pads and other cloth or cloth covered items. In some instances, other articles can be custom printed as well. These can include non-cloth items, such as polymeric plaques and license plates as well as ceramic mugs and plates, for example.

[0003] To date, people desiring custom printed objects have generally had two options for purchasing the same. One, a person could patronize a while-you-wait type of shop or kiosk that creates and/or personalizes an image, and then immediately produces and sells one or more articles having the image thereon. Two, an interested person could order a similar custom printed article from a print shop or other such business, and wait days or weeks for the article to be produced and delivered. While both types of business are common, each of these options has significant disadvantages associated therewith.

[0004] Typically, articles produced by while-you-wait type shops and kiosks are made using an "iron-on" type decal or appliqué. Such decals are often highly customizable and normally produced from a digital image that has been modified using software. Modifications to the image can include the addition of text and/or other graphics in one or more of a wide variety of colors, as well as altering the size and/or shape of the image. Once modified, the image is thereafter printed on a decal using a suitable printer, such as an inkjet printer,

for example. The decal can then be easily positioned on the article and secured thereto in any well known manner.

[0005] One disadvantage of the decals or appliqués used by such while-you-wait shops, however, is that the decals are only applied to the outer surface of the article. The decal is typically adhered to the outer surface of the article, such as by using a heat-activated adhesive, for example. Since the decals do not become part of the fabric of the article, these decals tend to have reduced durability from that of the article upon which the decal is applied. In some cases, these decals can have reduced colorfastness as well. This often results in the article having an undesirable appearance after a relatively short period of use.

[0006] Another disadvantage of such decals is that the edges of the decal are typically visible and clearly distinguishable from the article upon which the decal has been applied. This tends to detract from the appearance and quality of the resulting custom printed article. Furthermore, the decal forms a second layer of material on the article. This makes the portion of the article covered by the decal less flexible than the remainder of the article. Due at least partly to the nature and use of the article, this can be a bigger issue in some articles, such as t-shirts, for example, than it is with other articles, such as computer mouse pads, for example.

[0007] Alternately, custom printed products can be ordered from a print shop or other similar business entity. Typically, these shops produce articles that have the ink or dye forming the personalized image transferred directly into the fibers or structure of the article, rather than applying a decal to the outer surface thereof. As such, articles produced in this manner tend to have greater durability and improved colorfastness over those made using decals. One example of such a transfer printing method is dye sublimation transfer printing. However, products from such print shops are typically not available on a while-you-wait basis. Rather, the custom printed article is typically ordered, and then picked up by the customer or delivered thereto one or more days or weeks later. This is a significant disadvantage, as customers often want to take the custom printed article with them to avoid delivery charges or to avoid making a second trip to the print shop to pick up the article.

[0008] Another disadvantage of ordering customized articles from a print shop is that it is often not possible to view the customized image prior to production of the printed article. That is, the customer typically communicates to a print shop employee the customer's vision of what the customized article should look like. The customer typically attempts to communicate this vision verbally and by using sketches, and even by referencing pre-designed samples or illustrations. The print shop then later generates the image to be applied to the article. One disadvantage with this approach, however, is that these communications from the customer are often made to a person other than the one producing the customized image and article. As such, some portion of the communication from the customer is often lost in the transfer between employees. Another disadvantage is that since the customized image is usually produced after the customer has left the premises; the customer is often unable to view the customized image prior to picking up the finished article. Unfortunately, at this point, it is typically too late to refine or revise the image to provide an improved or more desirable end product.

[0009] Another difficulty with using ink or dye transfer techniques is related to the temperatures that are typically used in these processes, such as dye sublimation transfer printing processes, for example. This difficulty more specifically relates to the production of relatively thin, flat, plastic articles, such as customized license plates and plaques, for example. It is well known that such plastic articles normally retain residual stresses from the original production thereof. By subjecting these articles to sufficiently high printing temperatures, these residual stresses can be relieved causing the article to warp. This, of course, is undesirable. As such, the production of these types of articles have traditionally been left to print shops and other such businesses rather than while-you-wait type operations due to the availability of suitable heat dissipation surfaces as well as the time to allow the articles to properly cool.

[0010] Another difficulty with using ink or dye transfer techniques to produce custom printed articles is that of properly aligning the transfer image on the unprinted article. At least a part of the challenge here is due to the fact that the ink or dye forming the image faces the article to be printed. Since the transfer

sheets are typically opaque, it can be difficult to position the transfer image on the unprinted article in proper place. Furthermore, achieving the proper alignment can be made even more difficult by the fact that the image that is transferred from the transfer sheet is actually a mirror image of the desired, customized image. What's more, the article and transfer sheet must then be loaded into the transfer press without inadvertently moving the transfer sheet relative to the unprinted article. As such, articles printed using this process have traditionally been left to print shops and other such businesses rather than while-you-wait type operations due to the potential for production of improperly aligned products.

SUMMARY OF THE INVENTION

[0011] A workstation for producing a printed article using a transferable marking substance is provided and includes a workstation frame, an output device supported on the frame and a transfer press that is also supported on the workstation frame. The output device is adapted to output a transfer sheet having an image formed thereon from a transferable marking substance. The transfer press has a heating element suitable for transferring the marking substance from the transfer sheet to the article.

[0012] A retail system for producing a printed article having a customer-provided image is provided and includes an image input device for receiving the customer-provided image. A processor is in communication with the image input device and is adapted to output data corresponding to the mirror image of the input image from the input device. An output device is in communication with the processor and is adapted to receive the data corresponding to the mirror image of the input image. The output device is suitable for producing a transfer sheet having the mirror of the image formed thereon from a quantity of transferable dye. A transfer press has a heating element adapted to transfer the dye on the transfer sheet to the article thereby forming the image thereon.

[0013] A retail kiosk for production and sale of a printed article having a customer-provided image is provided and includes a kiosk structure and a storage device supported on the kiosk structure for receiving a digitized version

of the customer-provided image. A processor is supported on the kiosk structure and is in communication with the storage device. The processor is adapted to output data corresponding to a mirror image of the digitized version of the customer-provided image. An output device is supported on the kiosk structure and is in communication with the processor. The output device is adapted to output a transfer sheet having the mirror image thereon formed from a quantity of transferable dye. A transfer press is supported on the kiosk structure and has a heating element suitable for transferring the dye onto an unprinted surface of an article.

[0014] A heat dissipation element adapted for operative association with a transfer printing workstation is provided and includes a body having a substantially planar top wall and an opposing bottom wall. The bottom wall including a transfer surface increasing the surface area of the body.

[0015] A transfer printing fixture for use in operative association with an unprinted article and a printed transfer sheet having a peripheral edge is provided and includes a lower portion having a first peripheral edge and an upper portion having a second peripheral edge. A cavity is formed in at least one of the lower portion and the upper portion and is dimensioned to receive at least a portion of the unprinted article. At least one of the first and second peripheral edges is accessible such that the peripheral edge of the transfer sheet can be aligned therewith.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] FIGURE 1 is a front elevation view of one embodiment of a workstation in accordance with the present invention.

[0017] FIGURE 2 is a cross-sectional view of the workstation in FIGURE 1 taken along line 2-2 in FIGURE 1.

[0018] FIGURE 3 is a schematic representation of an image input and customization system of the workstation in FIGURE 1.

[0019] FIGURE 4 is a perspective view of one embodiment of a heat dissipation element in accordance with the present invention.

[0020] FIGURE 5 is a bottom plan view of the heat dissipation element in FIGURE 4.

[0021] FIGURE 6 is an exploded perspective view of one embodiment of a transfer template in accordance with the present invention shown in association with an article and a transfer sheet.

[0022] FIGURE 7 is an exploded perspective view of another embodiment of a transfer template in accordance with the present invention shown in association with a plurality of articles and a transfer sheet.

[0023] FIGURE 8 is a top plan view of another embodiment of a transfer template in accordance with the present invention.

[0024] FIGURE 9 is an exploded cross-sectional view of the alignment template in FIGURE 8 taken along line 9-9 in FIGURE 8 and shown in association with an article and a transfer sheet.

[0025] FIGURE 10 is a flow chart representing a first portion of a method of providing a custom printed article in accordance with the present invention.

[0026] FIGURE 11 is a continuation of the flow chart in FIGURE 10.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0027] As initial background information and to establish some terminology, it will be helpful to briefly discuss transfer printing methods as are well known by those of skill in the art. Generally, transfer printing methods include a step of moving or causing the movement of a marking substance from one surface to another. This can be contrasted with other printing methods, such as screen printing, for example, that form an image directly on the unprinted surface using free-form ink or another suitable fluid.

[0028] Transfer printing methods, such as dye sublimation transfer printing, for example, include steps of forming an image on a first surface, article or substrate and then transferring the image from the first surface to a second surface, article or substrate. Using dye sublimation transfer printing as an example, the image on the first surface is typically a mirror image of that desired on the resulting printed article. This mirror image can be formed on the transfer sheet in any suitable manner, such as by printing the image on the

transfer sheet using an output device, such as an ink jet printer, for example. The printed transfer sheet is then placed in abutting engagement with the unprinted article such that the image to be transferred is facing the article and properly positioned thereon. The article and transfer sheet are then heated to cause the dye to sublimate and transfer from the sheet to the article. This is usually performed within a press that forces the sheet tightly against the article.

[0029] Referring now to the drawings wherein the showings are for the purposes of illustrating preferred embodiments of the invention only, and not for the purposes of limiting the invention, FIGURES 1 and 2 illustrate a workstation **100** that includes a structural frame **102** having vertical supports **102A** and horizontal supports **102B** that together form a rigid, free standing structure having cavities **102C**. Suitable platforms or support surfaces (not shown) extend along or between the horizontal supports, and rollers, casters or other floor engaging members (not shown) can optionally be provided on frame **102** to improve the portability of the same. The cavities are suitable for storing unprinted articles (not shown), such as t-shirts, hats, computer mouse pads, mugs and plates, for example, as well as other supplies. Additionally, supported on structural frame **102** are an image input and modification system **104**, a first transfer press **106**, a second transfer press **108**, and a plurality of alignment fixtures **110**. Workstation **100** also includes a heat dissipation element **112** that is pivotally supported on structural frame **102**. Element **112** is secured to a plate **114** which is in turn attached to structural frame **102** by a suitable hinge **116**.

[0030] Additionally, supported on structural frame **102** and used in association with system **104** are displays **118** and **120**. Furthermore, an output device, such as a printer **122**, for example, is also supported on structural frame **102** and used in association with system **104**. Printer **122** is adapted to output transfer sheets **122A** having a marking substance (not shown) forming an image thereon.

[0031] Transfer presses **106** and **108** are generally well known and commonly used. The transfer presses can be of any suitable kind, type and/or configuration. For example, transfer press **106** can include an upper, vertically displaceable platen (not shown) and a lower, fixed platen (not shown). The

upper and lower platens are each substantially planar, and are adapted to compressively retain an unprinted article and a printed transfer sheet in abutting engagement with one another. Additionally, at least one of the upper and lower platens preferably includes a heating element, as is well known by those of skill in the art, to heat the unprinted article and transfer sheet facilitating the transfer of the image on the transfer sheet to the initially unprinted article.

[0032] Turning now to FIGURE 3, image input and modification system **104** is in communication with a first display **118** and optionally with a second display **120** through a suitable connector arrangement, such as a y-adapter **124**, for example. Additionally, system **104** is in communication with a suitable output device, such as a printer **122**. Image input and modification system **104** includes a processor **126**, an input adapter **128**, and output adapter **130** and a display adapter **132**. Each of adapters **128**, **130** and **132** is in communication with processor **126**. System **104** also includes a memory device **134**, a data storage device **136**, and a removable storage device **138** each in communication with processor **126**. The various components of system **104**, including items **126-138**, are shown in FIGURE 3 as being assembled in casing **140**. One example of a suitable embodiment of system **104** and the components thereof takes the form of a personal computer or PC, as are generally well known and commonly used. It will be appreciated, however, that system **104** can take any suitable shape, form or configuration without departing from the principles of the present invention.

[0033] Input adapter **128** includes a plurality of input ports **142** provided on casing **140**. Suitable input devices, such as a scanner **144**, a memory card reader **146**, a camera interface **148**, a keyboard **150** and a mouse **152**, for example, are connected to input ports **142** via suitable input cables **154**, as are well known and commonly used. Additionally, output adapter **130** includes an output port **156** provided on casing **140**. Printer **122** is connected to output port **156** using a suitable output cable **158** as are well known and commonly used. Furthermore, display adapter **132** includes a display port **160** provided on casing **140**.

Displays **118** and **120** are shown in FIGURE 3 as being connected to display port **160** via display cables **162A**, **162B** and **162C** through y-adaptor **124**.

[0034] FIGURES 4 and 5 illustrate one embodiment of a heat dissipation plate **200** suitable for use as a heat dissipation element **112** shown in and discussed with regard to FIGURE 1. Heat dissipation plate **200** is shown in FIGURES 4 and 5 as being substantially rectangular in shape having four edge walls **202**. It will be appreciated, however, that any shape or configuration can be used without departing from the principles of the present invention. Heat dissipation plate **200** also includes opposing top and bottom surfaces **204** and **206**, respectively. Preferably, top surface **204** is substantially planar and provides a suitable surface for allowing flat, polymeric printed articles to cool while minimizing warpage and deformation. Bottom surface **206** includes a plurality of slots **208** that extend into plate **200** toward top surface **204**. Alternately fins projecting outwardly from bottom surface **206** or any other suitable surface increasing geometry that has the effect of improving heat transfer from plate **200** can be used. To maximize the rate at which heat is transferred or otherwise received from the printed articles placed on top surface **204** to cool, plate **200** is preferably formed from a material having a relatively high coefficient of thermal conductivity, such as from about 40 W/m•K [23 BTU/hr•ft•°F] to about 410 W/m•K [237 BTU/hr•ft•°F], for example. Examples of suitable materials include metallic materials, such as aluminum and copper.

[0035] FIGURES 6-9 illustrate various embodiments of alignment fixtures **300**, **400** and **500**, which are collectively shown in FIGURE 1 as alignment fixtures **110**. Turning first to FIGURE 6, alignment fixture **300** is shown prior to assembly with an unprinted article **ART** and a printed transfer sheet **PTS**. Fixture **300** includes a substantially rigid base portion **302** and an at least partially compressible second portion **304**. Portions **302** and **304** are shown in FIGURE 6 s being separate and independent from one another. However, it will be appreciated that this exploded arrangement is shown purely for the purposes of illustration and that under normal use these two parts are assembled together to form a unitary alignment fixture. In one preferred embodiment, base portion **302** is formed from a metal or thermoplastic material, and secondary portion **304**

is formed from a heat-resistant silicon foam rubber material. Alignment fixture **300** is shown in FIGURE 6 as being rectangular in shape. Preferably, the alignment fixture is substantially the same size and shape as printed transfer sheet **PTS**. A nest or cavity (not numbered) receiving article **ART** is formed by openings **302A** and **304A** in portions **302** and **304**, respectively. Preferably, the nest is dimensioned such that there is only a limited amount of clearance around the periphery of article **ART** when the same is received within the nest. This desirably assists in maintaining the article in the proper position relative to the external periphery of the alignment fixture or any other alignment guide or feature that is used.

[0036] Though it is not apparent from FIGURE 6, the thickness of portions **302** and **304** when assembled together are preferably substantially the same thickness as that of article **ART**. Since opening **302A** extends all the way through base portion **302**, a bottom surface of the article rests on a bottom platen of the press when the article is received in the nest of the alignment fixture. Furthermore, since the thicknesses of the fixture and the article are substantially equal, top surface **304B** of second portion **304** is then substantially aligned with the top surface of unprinted article **ART**. It will be appreciated that due to the compressibility of second portion **304**, it may be, in some cases, desirable to have top surface **304B** project slightly above the top surface of the unprinted article.

[0037] Once the unprinted article is situated within the nest of alignment fixture **300**, printed transfer sheet **PTS** is arranged such that a printed image **IMG** thereon is facing the unprinted surface of the article and is in the proper orientation relative thereto. The printed transfer sheet is then place don top of the unprinted article and the corners (or other suitable features) of the transfer sheet are aligned with a pre-determined alignment feature, such as the outside corners of the alignment fixture. It will be appreciated, however, that any suitable pre-determined alignment guide or feature can be used for alignment of the printed transfer sheet. Since the image to be transferred has been printed in a corresponding pre-determined position on the transfer sheet, the alignment of the transfer sheet with the alignment fixture properly positions the image on the

unprinted article. In this way, positioning of the image in direct relation to the unprinted article is eliminated, and the image can be easily and correctly positioned relative to the unprinted article. Optionally, a handle (not shown) or other suitable feature can be provided on the alignment fixture to assist in moving the same into and out of the transfer press.

[0038] FIGURE 7 illustrates another embodiment of an alignment fixture **400** shown prior to use with a plurality of unprinted articles **ART** and a printed transfer sheet **PTS** having a plurality of printed images **IMG** to be transferred. Alignment fixture **400** includes a base portion **402** and an upper portion **404** and is shown in FIGURE 7 in an exploded configuration with upper portion **404** separate from base portion **402**. However, it will be appreciated that the two portions of the alignment fixture are shown in this exploded arrangement purely for the purposes of illustration and that, under normal use, these two portions are assembled together in a unitary construction.

[0039] In one preferred embodiment, base portion **402** is formed from an at least partially compressible material, such as a heat-resistant silicon rubber foam, for example. In this preferred embodiment, upper portion **404** is formed from a substantially rigid material, such as a metal or thermoplastic, for example. Base portion **402** is shown in FIGURE 7 as being rectangular in shape and having a substantially planar top surface **402A**. Upper portion **404** is of substantially the same shape and size as base portion **402**. Preferably, however, the alignment fixture is substantially the same size and shape as the transfer sheets that are to be used. It will be appreciated, however, that any suitable shape and/or corresponding alignment guide or feature can be used. Additionally, a plurality of nests or cavities **406** extend through upper portion **404** that are not present in base portion **402**. As such, top surface **402A** of base portion **402** acts as a bottom wall of each of nests **406**. A handle (not shown) or other suitable feature can optionally be provided on alignment fixture **400** to assist in moving the same into and out of the transfer press.

[0040] In use, each article **ART** is received in one of nests **406** and is supported therein on top surface **402A** of base portion **402**. Preferably, nests **406** are suitably sized and shaped to receive articles **ART** with a minimal amount of

clearance between the periphery of the article and the walls forming the openings. As such, the articles will have a close fit in the openings to minimize the movement of the articles within the openings and relative to any alignment feature used to align the printed transfer sheet. Though it is not apparent from FIGURE 7, upper portion **404** is preferably of a suitable thickness such that the unprinted surface of the articles is substantially even with or projects slightly above the top surface **408** of the upper portion of the alignment fixture. Printed transfer sheet **PTS** includes a plurality of preprinted images **MG** on the bottom surface of the sheet. It will be appreciated that in this embodiment, the alignment fixture is substantially the same size and shape as the transfer sheet, as is discussed above. Additionally, images **IMG** are printed in pre-determined positions on the transfer sheet to be in the correct position relative to the unprinted surfaces of the articles when the transfer sheet is aligned with the alignment fixture.

[0041] FIGURES 8 and 9 illustrate another embodiment of an alignment fixture **500** that includes a base member **502** having a cavity **504** extending into base portion **502** and forming a bottom wall **506** and a peripheral outer wall **507**. In this embodiment, cavity **504** has a generally circular shape and includes radially outwardly extending access pockets **508**. The alignment fixture **500** shown in FIGURES 8 and 9 includes four circumferentially-spaced access pockets **508** that are somewhat rectangular in shape, but it will be appreciated that any suitable quantity, shape and/or configuration can be used. Projecting upwardly from bottom surface **506** is a substantially cylindrical boss **510** that is positioned centrally within cavity **504**. Boss **510** includes a generally planar top surface **512** upon which a conformable pad **514** is secured. In one preferred embodiment, pad **514** is formed from an at least partially compressible material, such as a heat-resistant silicon rubber foam, for example. A printed transfer sheet **PTS** having a printed image (not shown) to be transferred and an unprinted article, such as a plate **PLT**, for example, to receive the transfer image are shown spaced from alignment fixture **500**. It will be appreciated that the transfer image on printed transfer sheet **PTS** will face surface **PLTA** of plate **PLT** to receive the image.

[0042] In use, the printed transfer sheet and plate are supported on pad **514** and boss **510**. The outer edge **PLTB** of plate **PLT** is received within cavity **504** such that the edge preferably does not contact bottom surface **506**. Access pockets **508** are provided for easy transfer of the plate into and out of the cavity. As such, the access pockets can be of any suitable size, shape or configuration without departing from the principles of the present invention. The alignment fixture, printed transfer sheet and plate are together placed into the transfer press and the bottom of the plate contacts the heated upper platen of the transfer press to heat the plate and the dye forming the image to be transferred. A handle (not shown) or other suitable feature can optionally be provided on the alignment fixture to assist in moving the same into and out of the transfer press.

[0043] The foregoing discussion of alignment fixtures **300**, **400** and **500** illustrate the use of cavities designed to receive generally rectangular articles and circular plates. However, it will be appreciated that articles of a wide variety of shapes and sizes are commonly custom printed. The examples of alignment fixtures discussed herein may not appear to have suitable cavities for receiving, positioning and properly supporting each of this wide variety of articles. However, the examples described herein are not intended to be limiting. Rather, the unprinted articles and cavities therefor discussed within this disclosure are merely intended to represent generic articles and the claims hereof are not intended to be in any way limited by the size or shape of the articles and cavities shown and discussed.

[0044] FIGURES 10 and 11 illustrate a flow chart of steps in a method **600** of providing a custom printed article. As a preliminary step **602**, a customer presents him or herself and has a graphic image in his or her possession, either mentally or physically. It will be appreciated that such a graphic image can include text, symbols, illustrations, pictures or photographs, or any other visual materials or combination thereof that a customer desires to have printed on an article. Once a customer has approached the workstation and indicated a desire to have an article custom printed with the graphic image, the operator of the workstation inquires in step **604** whether the image is in digital form. If the image is not in digital form, then the operator uses a suitable image acquisition

device, such as a scanner **144** (FIGURE 1), for example, to acquire a digital version of the graphic image as indicated in step **606**. If the customer's graphic image is in digital form or once the digital version has been acquired in step **606**, the digital image data is downloaded or read as indicated by step **608**. The data can be downloaded or read into an image input and modification system, such as item **104** shown in FIGURES 1 and 3, for example. Next, the workstation operator inquires in step **610** as to whether additional on-site customization of the graphic image is desired by the customer. Where the customer desires further customization, the operator adds graphics, text or otherwise revises the graphic image as desired by the customer, as indicated in step **612**. Additionally, it will be appreciated that the customer can monitor and approve the changes to the graphic image on second display **120** (FIGURES 2 and 3). If, in step **610**, the customer does not desire additional on-site customization or where the graphic image has been revised in step **612**, the graphic image data is then processed into a mirror image in step **614**. Thereafter, the mirror image is output to a suitable output device as shown in step **616**. One example of a suitable output device is an ink-jet printer, which generates a printed transfer sheet having the mirror image formed thereon from a transferable ink or dye. In another step **618**, the customer selects or otherwise presents to the operator those one or more articles to be printed with the customized image. It will be appreciated, however, that step **618** will often occur far earlier in the process, such as in conjunction with step **602**, for example, in which the customer provides the graphic image.

[0045] In another step **620**, the operator of the workstation determines whether an alignment fixture is available for the article that is to be printed. Where such an alignment fixture is available, the operator loads the unprinted article into an appropriate alignment fixture as indicated by step **622**. In step **624**, the operator aligns the transfer sheet on the alignment fixture with the graphic image facing and properly oriented with regard to the surface of the unprinted article. Thereafter, the operator loads the fixture with the article and the transfer sheet into the transfer press as shown in step **626** and operates the transfer press as shown in step **628**. Once the article and the transfer sheet

have been pressed together for a sufficient time and at a suitable temperature, the alignment fixture, the now printed article and the used transfer sheet are unloaded from the press ass indicated by step **630**. The now printed article can be thereafter unloaded from the alignment fixture as indicated by step **632**.

[0046] Where no alignment fixture is available for the article in step **620**, the article is loaded into the transfer press by itself as indicated in step **634**. Thereafter, the printed transfer sheet is aligned on the article as indicated in step **636** and the transfer press operated as shown in step **638**. Once the surface of the article and transfer sheet have been compressed within the press for a sufficient time and at a suitable temperature, the now printed article is unloaded from the transfer press as indicated by step **640**.

[0047] Having unloaded the article from the press in step **640** or from the alignment fixture in step **632**, the now printed article is allowed to cool in step **642**. This can be done in any suitable manner and will vary from article to article. One suitable method of cooling the article includes placing the same on the heat dissipation element **112**, for example. As an optional step thereafter, the operator can record a transaction for custom printing the article as indicated in step **644** and print a transaction receipt as indicated in step **646**. Thereafter, the operator can pass the now cool custom printed article to the customer completing the transaction as indicated by step **648**.

[0048] While the invention has been described with reference to the foregoing embodiments and considerable emphasis has been placed herein on the structures and structural interrelationships between the component parts of the embodiments disclosed, it will be appreciated that other embodiments of the invention can be made and that many changes can be made in the embodiments illustrated and described without departing from the principles of the invention. Obviously, modifications and alterations will occur to others upon reading and understanding the preceding detailed description. Accordingly, it is to be distinctly understood that the foregoing descriptive matter is to be interpreted merely as illustrative of the present invention and not as a limitation. As such, it is intended that the invention be construed as including all such modifications and alterations insofar as they come within the scope of this disclosure.